



# Bedford Regional Water Authority



## Annual Report & Consumer Confidence Report 2015

*Providing Quality Service For Everyone*





## A Note From the Executive Director, Brian Key

I love spring; it is the time when I get to see all the hard work from previous years that was put into planting and tending to gardens and landscapes payoff with new foliage and blooms popping out of the ground and from the branches. In a similar way, this spring we are watching as the years worth of planning and design on the Smith Mountain Lake project turns into construction of the new water treatment plant and related waterlines. It is also the time of year that we wrap up our budget preparation work for the up and coming fiscal year, and when we have a chance to prepare this report to communicate to our community about the work that we are doing for our customers.



We are quite pleased with the results from the customer survey that was recently completed, and hope that you will take some time to review the survey summary contained herein; we are now following up on the comments from the survey, and striving to make sure that we provide the best possible level of service to our customers. If you didn't get to participate in the survey, but would like to touch base with us about the service that we provide you and the community, please don't hesitate to contact us. Our goal and core value is "providing quality service for everyone", and everyone at the Authority is working to that end. I hope you have a happy spring too!



## Mission Statement:

The Bedford Regional Water Authority exists to provide its customers with high quality water and wastewater services at rates that are reasonable and just. The Authority shall anticipate the needs of the greater community by continually maintaining responsive, reliable service and through systematic expansion whenever economically possible.



## What to Expect From This Report

This report combines the Consumer Confidence Report ("CCR") with the Annual Report of the Authority for 2015. The desire with this report is not only to dispense the information required by law, but to also give customers a comprehensive look at what the Authority has been doing throughout the past year and what to expect from the organization in 2016.

The Consumer Confidence Reporting section of this document for calendar year 2015 is designed to inform customers about their drinking water quality. The goal is to provide customers with a safe and dependable supply of drinking water, and the Authority wants customers to understand the efforts made daily to protect the water supply. The quality of the drinking water must meet state and federal requirements administered by the Virginia Department of Health ("VDH"). The presence of a particular constituent does not mean that the water is unsafe to drink; however, if something is detected above the maximum level, the PWS must discuss the potential health effects and actions taken to correct the problem.

In the following pages you will see:

- The results of our customer care survey
- An overview of the customer population of the Authority
- Information about the quality of your drinking water (CCR information)
- Information about the Board of Directors
- Who to contact with questions
- And much more!





## The Results of the Customer Care Survey

What we do every single day is produce clean, quality water. The Authority feels *what* we do is just as important as *who* we do it for. We are here to provide you, the customer, with the best experience possible, and that includes everything from the product we supply to the service we administer. To help us gauge how we are doing in this, we sent out a customer care survey in early 2016.

Five thousand surveys were randomly distributed out of approximately 12,574 customers (a mix of residential and businesses) or about 40% of Authority customers. The *target* response rate was 980 or 19.6% of the distributed survey with a margin of error of +/-3%. The *actual* response rate was 1,294 or 26% of the distributed survey, 32% higher than the target.

The Authority focused the survey questions around five topics: water quality, customer experience, payment methods and options, website operations, and field work operations. Here is a quick recap of the survey:

### **Water quality:**

In light of the Flint, Michigan water supply situation, safe, clean drinking water is a hot topic. Authority customers see the organization as doing a highly satisfactory job of providing safe, clean drinking water. In addition, 34% of those commenting were “complimentary” with specific responses ranging from the generic “Thank you” or “Thank you for doing such an excellent job!” to “Thank you to (specific employee) for doing such a marvelous job on our property.”

### **Customer experience:**

According to customers, the Authority executes excellent customer service. The questions measuring for the Authority’s customer experience received an average of 97.5% overall rating. Such high ratings are rarely seen, especially for relatively new organizations, reflecting excellence in customer interactions.

### **Payment Methods and Options:**

Payment methods and options were of keen interest to stakeholders, comprising 36% of the 14 survey items.

Response to the item measuring satisfaction with current payment methods indicated a high level of satisfaction. One question specifically sought to gauge interest in an automated phone payment method. There is little if any interest in this method as 76% of respondents selected Strongly Disagree, Disagree, and Neutral.

Currently, the Authority requires a service fee be added to a customer’s bill to pay by credit card. Stakeholders were interested in discovering if more customers would pay via a credit card if the fee was eliminated. Fifty-six percent (56%) of respondents wouldn’t pay their bill with a credit card if no service fee existed. However, 51 comments (15% of all comments) specifically mentioned that they did not want a service fee on credit card transactions. It was also found that the majority of customers were not interested in using a phone app to pay their bills.

The every-other-month billing cycle was the subject of a question. Eighty-five percent (85%) indicated they were satisfied with every-other-month billing. Interestingly enough, 30 comments (9% of total comments) specifically asked for monthly billing to replace the current every-other-month cycle, some citing cash flow and seniors’ fixed incomes as reasons.

### **Website Operations:**

Results indicate that an overwhelming majority of Authority customers are satisfied with the current online access to account information. When asked about the desirability of an online form to open, close, or transfer accounts, the responses suggested a real interest in such a form.





## The Results of the Customer Care Survey, Continued

### Field Work Operations

Overall, fieldwork operations are performed at a most excellent level of service, based on a positive response when asked about traffic control, receiving adequate notice about possible service disruptions, and property restoration.

### Comments:

An open-ended comments section was added to the survey that provided a valuable insight into respondents' desires and thoughts regarding Authority services. About 27% or 350 of those returning surveys choose to comment.

Of the 350 comments made, 118 or 34% of total comments consisted of compliments. Those complimenting consisted of 9% of total respondents, a significant number who went the extra mile to say something nice about the Authority.

The second highest number of comments had to do generally with website operations, from no credit card fee to specific plugin problems (Microsoft Silverlight malfunctioning was mentioned numerous times) with 51 comments or 15% of total comments. Many of those commenting about website operations made multiple remarks about various issues.

As mentioned previously, thirty comments expressed a desire for monthly billing, about 9% of those commenting and 2% of total respondents. The interesting notation here is that while this item was specifically measured earlier, respondents felt strongly enough about it to mention it.

Interestingly, 28 comments or 8% of total comments stated rates are too high. These comments represented about 2% of total respondents.

As established earlier, water quality is a top of mind concern for most customers of water treatment systems due to the highly-publicized Flint, Michigan situation. A relatively low percentage, 2%, of total respondents (24) cited water quality issues with their service.

### Now that we have the results, what are we going to do with them?

We have a few action items we are working on right now:

1. If you commented about a specific question or issue that we interpreted as needing some action taken (i.e., a phone call to you to discuss or a visit to look at property restoration) we are in the process of investigating and responding if necessary to each case individually.
2. Billing options! We heard you loud and clear that we could make some improvements to our billing—so we are doing that! Starting in July we will begin the process of rolling out a new payment processor that will give our customers better online statements, a more mobile friendly sites, and other great assets. We will be sending more information to customers as we get closer to this date.

Thank you for all your honest responses and the time you took to fill out the survey. Each survey was looked at individually and every comment was read by numerous members of our staff.

For even more details about the survey results you can go to our website at [www.brwa.com](http://www.brwa.com).





## Overview of Facilities

- 4 Water Treatment Plants
- 2 Water Intake Stations & 1 Reservoir
- 5 Water Booster Stations
- 11 Water Storage Tanks
- 3 Wastewater Treatment Plants
- 21 Sewer Lift Stations
- 2 Administrative Office Buildings & 1 Shop



## The Environment and Bedford Water

It is a well known fact that there is only so much water on this planet, and that we just keep recycling it year after year. This means it is essential to care for our water and treat it so no harm comes to this valuable resource, the people who need it, or the natural ecosystems that surround us. The Authority recognizes the importance of this essential resource, and we are passionate about treating water in a safe way for both people and the environment. Below is a partial listing of how we play a part in keeping a clean and thriving environment and a healthy community.

- The water we distribute to our customers goes through a filtration and treatment system and a disinfection process that makes the water safe and ready to drink.
- The water that we collect, treat, and put back into streams is required to be below the levels the Department of Environmental Quality sets. These levels ensure that the water is safe for all organisms after it enters back into streams.
- The Authority recognizes the importance of protecting our communities, not only through clean water and eco-friendly processes, but by also providing water to fire hydrants for emergencies as they arise.







## What is the Bedford Regional Water Authority?

The Bedford Regional Water Authority (“Authority”) was created by the Bedford County Board of Supervisors (“Supervisors”) by a resolution dated November 14, 2012 and the Bedford City Council (“Council”) by resolution dated November 27, 2012. The Bedford Regional Water Authority combines the former Bedford Public Service Authority and the former City of Bedford Water and Sewer Department into a water authority that provides water and wastewater services for the Town of Bedford and Bedford County.

Three of the initial Board of Director members were appointed by the Supervisors on November 14, 2012, and three of the initial members were appointed by the Council on December 11, 2012; the seventh member was recommended by the BRWA, and confirmed by the Council and the Supervisors. The State Corporation Commission approved the Articles of Incorporation on December 13, 2012. The first board meeting was held on December 18, 2012. You can [view the current board of directors on the Authority's website](http://www.brwa.com) (www.brwa.com).

Currently the Authority has 63 employees and operates 24 hours a day, 7 days a week, 365 days a year to provide customers with high quality water and wastewater services. Authority staff are constantly being trained on new technologies, safety issues, customer service protocol, and other related items to assist in achieving the organization's goal of providing the highest quality water and the best customer service possible



## Smith Mountain Lake Water Treatment Plant Project Update

A large project the Authority has been working on this past year involves preparing to construct a new water treatment plant at Smith Mountain Lake and running a new waterline along Route 122 and Route 460. This project is going to provide a great amount of benefits to the community; some of these benefits include being able to:

- Provide redundant backup sources for the Lakes, Central, and Forest service areas
- Save millions of dollars over the next 50 years by producing water instead of buying it
- Save approximately \$8 million in needed updates to the current treatment plant at HighPoint
- Allow for more efficient service to customers
- Increase fire safety with the installation of additional fire hydrants
- Provide the ability to provide water service along new waterline
- Increase service to Franklin County through partnership with Western Virginia Water Authority
- Be able to help region in times of need with connections to Franklin County, the City of Lynchburg, and Campbell County

This project is under construction and on schedule to be finished by December 2016. The best way to keep up-to-date with the project is to follow along on the [project's webpage](http://www.brwa.com) on www.brwa.com. While there you can also sign-up for the project's email list to receive progress on the project delivered to your inbox.



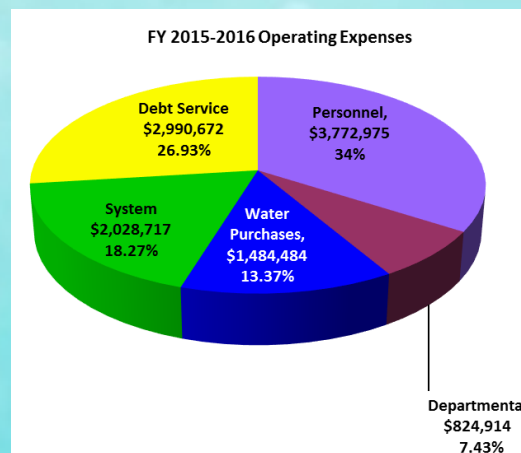
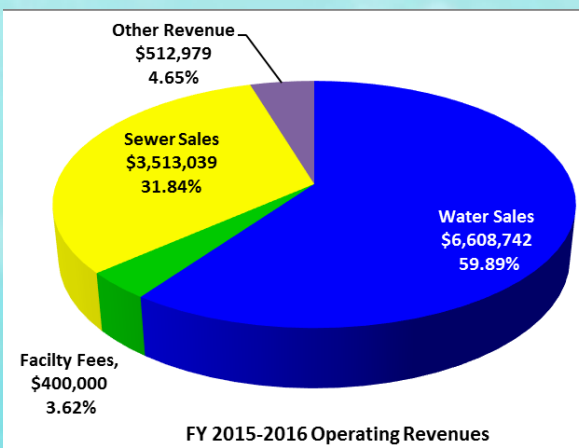




## 2015 Financial Review

For the fiscal year ended June 30, 2015 the Authority experienced an increase in operating revenues of \$1,262,409, compared to an increase of \$804,583 from the previous year. Operating expenses increased by \$245,665 compared to an increase of \$323,372 from the previous year. Factors that contributed to the revenue increase were increased facility fees, increased customers, and year three of the rate equalization process. Developer Dedications totaled \$910,637 for FY 2015, compared to \$670.387 in the previous year. Expenses for the water and sewer systems were a large part of the increase in operating expenses due to increased costs of purchasing and producing water and treating wastewater.

The FY 2015-2016 budget included the third year of the rate equalization process following consolidation and the rates used in this budget were determined through a study that was prepared by Draper Aden Associates in the spring of 2014. The current budget for the Authority again includes the facility fees in operating revenues, which is a practice that will hopefully terminate in the next two to five years as the rate equalization process continues and the Authority is able to set aside funds for capital projects. In November of 2015 the Authority successfully closed a bond issuance of \$31,225,000 with the Virginia Resources Authority (VRA). The proceeds from this bond issuance are being used for the construction of the Smith Mountain Lake Water Treatment Plant and the waterlines that are being constructed to serve customers from the Lakes to Forest.



### Certificate of Achievement for Excellence in Financial Reporting

The Authority's comprehensive annual financial report (CAFR) for the year ended June 30, 2015, was awarded the Certificate of Achievement for Excellence in Financial Reporting by the Government Finance Officers Association of the United States and Canada (GFOA). In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements and we have submitted it to the GFOA to determine its eligibility for another certificate.

This is the third year that the BRWA has earned this certificate of achievement; however, the Bedford County Public Service Authority had received the award 17 consecutive years prior to consolidation.



The Authority proudly displays all of its GFOA awards.





## Meet the Board of Directors

The Authority board hires the Executive Director, who is responsible for managing the Authority. The Authority is composed of managers and staff specializing in Administration, Customer Service, Engineering, Finance, Human Resources, Information Systems, Maintenance, and Operations.

The times and location of regularly scheduled board meetings are the third Tuesday of every month at 7:00 PM in the Bedford Regional Water Authority Board Meeting Room located at 1723 Falling Creek Road in Bedford.



Mr. Michael Moldenhauer

Term Expires  
December 2019



Mr. Tom Segroves

Term Expires:  
December 2019



Mr. Elmer Hodge

Term Expires:  
December 2016



Mr. Walter Siehien

Term Expires:  
December 2018



Mr. Robert Flynn

Term Expires:  
December 2020



Mr. Carl Wells

Term Expires:  
December 2016



Ms. Cynthia Gunnoe

Term Expires:  
December 2016



## Contact Us

### Hours of Operation:

8:30 a.m. to 5:00 p.m.

Monday through Friday

### Customer Service

540-586-7679, Extension 4

customerservice@brwa.com

- Water bills
- Rates and connection fees
- Signing up for service
- Disconnecting well service
- Reporting a leak or pressure problem during operating hours

### Administration

540-586-7679, Extension 7

admin@brwa.com

- Board of Directors information
- Board and Committee meeting information

### Emergency (Outside of operating hours)

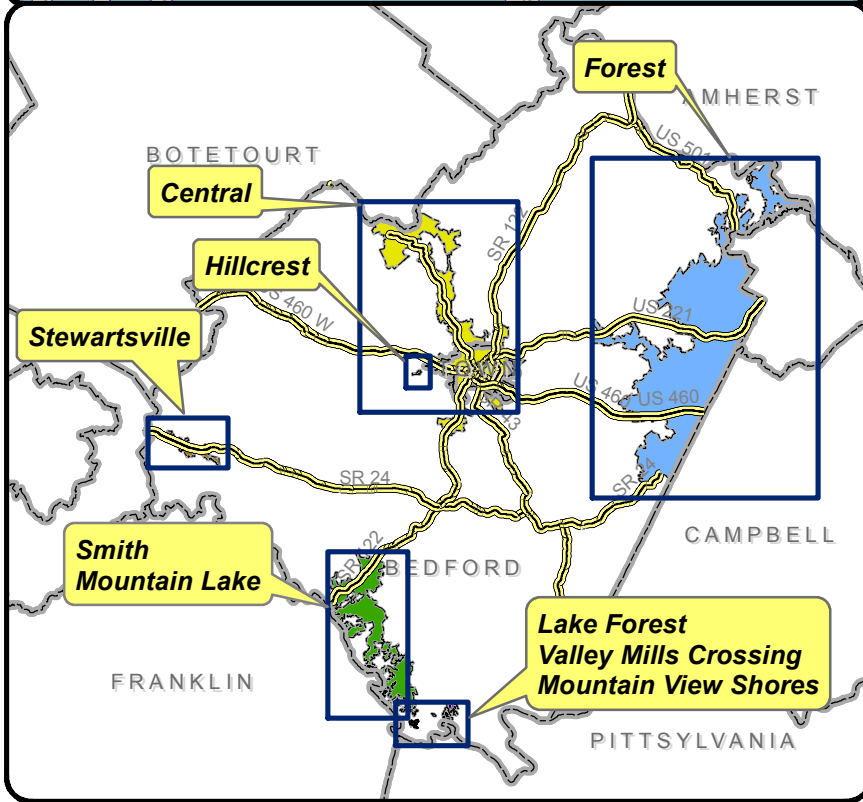
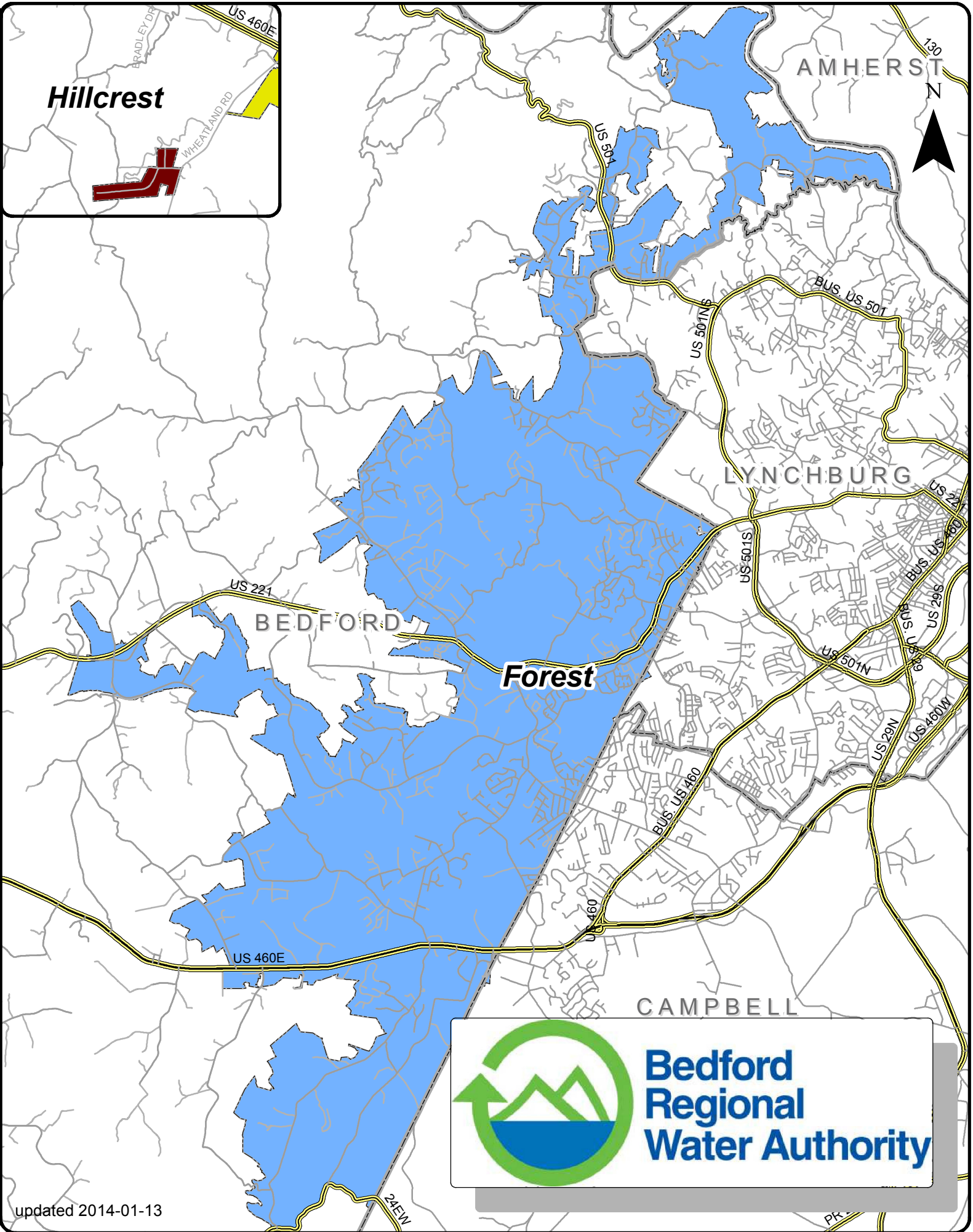
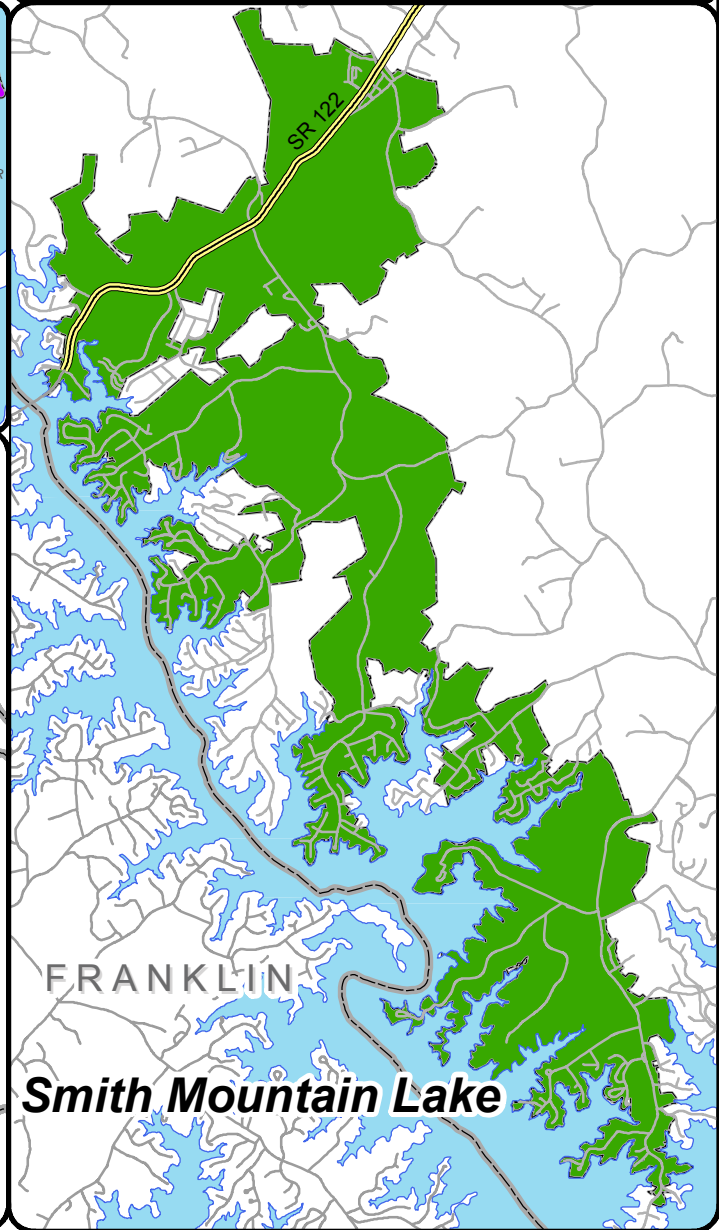
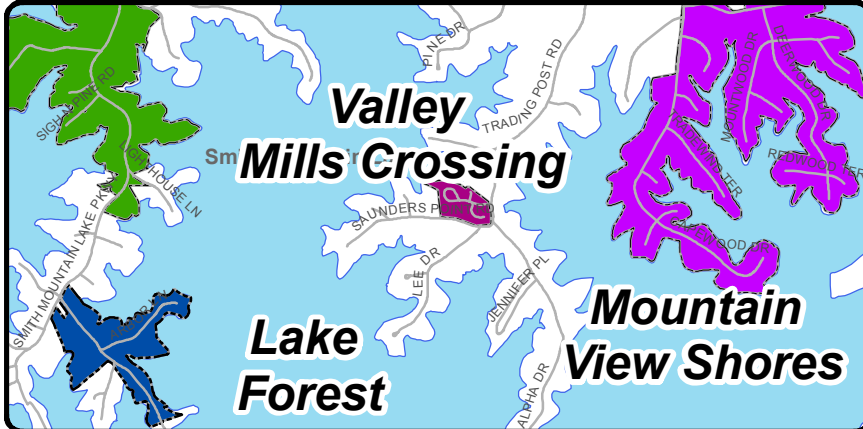
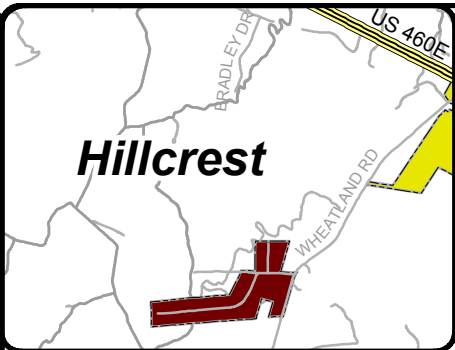
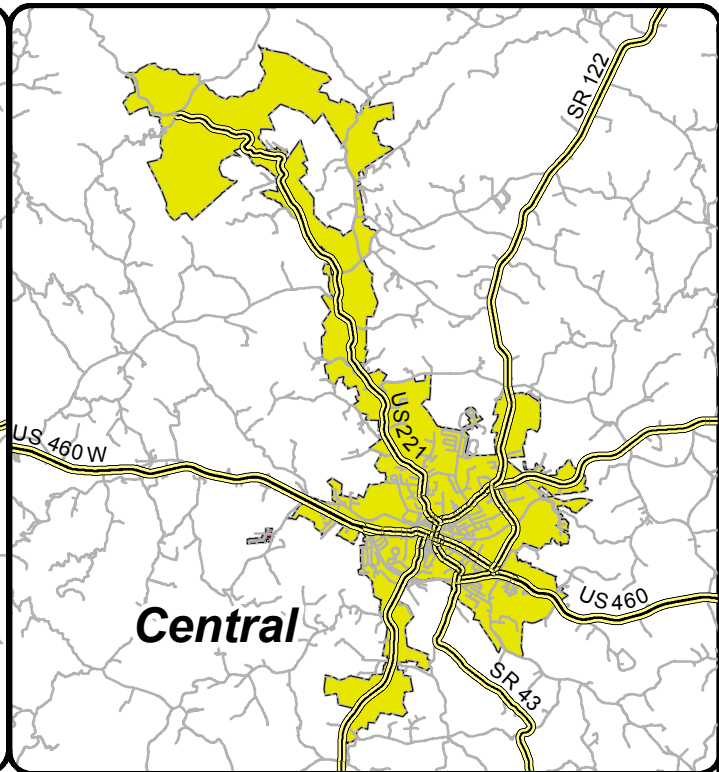
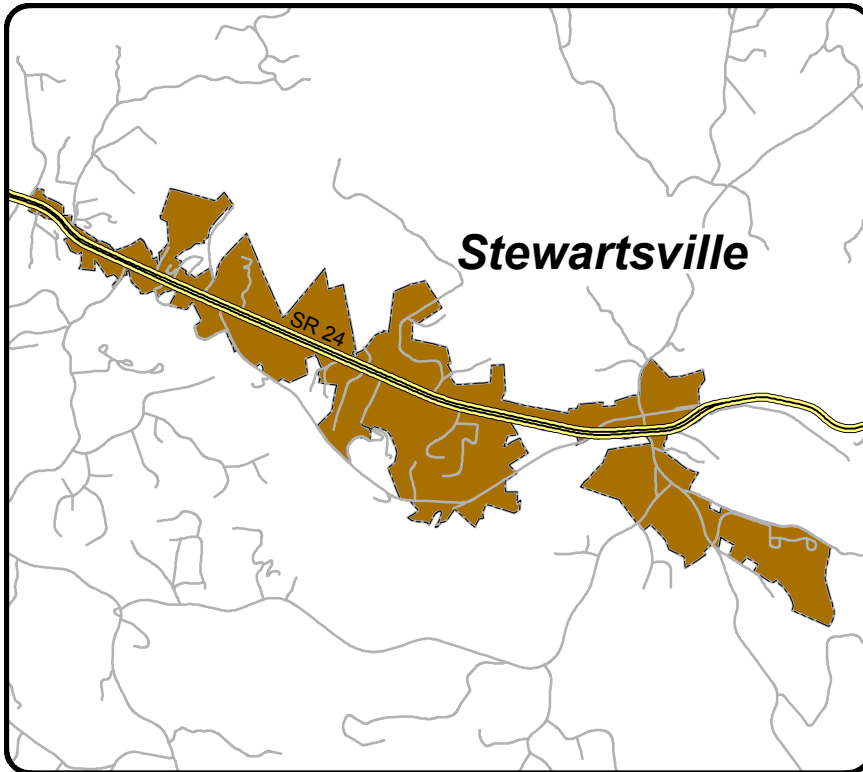
540-586-7679, Extension 9

- Water outages
- Reporting a leak
- Sewer service disruptions

**Website:** [www.brwa.com](http://www.brwa.com)

If you have questions about this report or need any additional information about any aspect of your drinking water or want to participate in decisions that may affect the quality of your drinking water, please contact the Bedford Regional Water Authority at (540)-586-7679. Any other questions you may have concerning your water quality may be addressed via email at [customerservice@brwa.com](mailto:customerservice@brwa.com).





updated 2014-01-13





## Vulnerable Populations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).



## Important Information About Lead and Copper

**Lead (ppb)- Copper (ppm)-** If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Bedford Regional Water Authority is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 15 to 30 seconds or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.



## Did You Know that in 2015 the Authority...

- Had 12,610 water customers.
- Had 4,531 sewer customers
- Employed 54 full time and 1 part-time employee
- Produced 1,086,774 gallons of water
- Treated 453,312 gallons of wastewater
- Added 153 water connections
- Added 45 sewer connections
- Read 80,043 meters
- Installed or changed out 2,470 meters
- Processed 73,617 payment transactions
- Had 352 miles of water lines
- Had 141 miles of sewer lines







## Sources of Your Drinking Water

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

**Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

**Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

**Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

**Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water and provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).



## About the Sources

A source water assessment was conducted for Mountain View Shores, Forest Central Water System, Smith Mountain Lake Central Water System, Valley Mills Crossing, and the Town of Bedford was performed in 2002 by the Virginia Department of Health. The wells and reservoirs were determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program.

Each Source Water Assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination within the last 5 years. The reports are available by contacting the Authority at the phone number or address given elsewhere in this drinking water quality report.

### Mountain View Shores

The source of your drinking water is a groundwater source provided by three wells. Water from two wells is filtered using greensand pressure filters and treated with chlorine, soda ash, permanganate, and a blended phosphate product before entering the distribution system. Water from one of the three wells is untreated.

### Forest Central Water System

The Authority buys the water it provides you from the City of Lynchburg. The primary source of water is the 125-acre Pedlar Reservoir (surface water source), located on approximately 500 acres; this water is transmitted to Lynchburg by gravity in a 21-mile pipeline from a mountain location in Amherst. When additional water is needed, it is withdrawn from the James River. The City treats the water at two water treatment plants: the College Hill Filtration Plant and the Abert Filtration Plant.

### Smith Mountain Lake Central Water System





## About the Sources, Continued

The source of your drinking water is provided by Smith Mountain Lake, a reservoir maintained by American Electric Power for generation of hydroelectric power. The water is treated at Highpoint Water Treatment Plant. It is one of the few membrane filtration plants in the state designed to treat surface water in accordance with the Safe Drinking Water Act and all other Virginia Department of Health guidelines. The process requires no chemical addition except chlorine for disinfection and potassium permanganate, so the process waste consists of only concentrated lake sediment.



### Valley Mills Crossing

The source of your drinking water is a groundwater source provided by one well. The water is treated with chlorine before entering the distribution system.

### The Town of Bedford

The main water source is the Stoney Creek Reservoir located in Bedford County, which is a surface water source. The Authority has a supplemental source located in Bedford County that is used presently during periods of dry weather. This source is the Big Otter river and five drilled wells near the intake point of the Big Otter river.

### For Stewartsville

The Authority purchases the water it provides you from Western Virginia Water Authority ("WVWA"). The primary source of your drinking water is provided by 21-acre Falling Creek Reservoir, a surface water source located in Bedford County east of Vinton. It is fed by Beaver Reservoir that covers 69 acres. The treatment process is a conventional sand filter, with a capacity of 1.5 million gallons a day. WVWA can also supply water to the Authority for Stewartsville from their Crystal Springs, Carvins Cove, and Spring Hollow water supplies. Source water assessments ("SWA") have been prepared for all of these supplies; they determined that the WVWA's water sources are susceptible to contamination. This designation does not mean that the source water has been impacted or that it will be impacted. It means that if there is a release of pollutants in the assessment area, the source water could be impacted. The VDH completed a SWA of Spring Hollow Reservoir's water source, the Roanoke River, and determined that the Roanoke River may be susceptible to contamination because it is surface water exposed to a wide array of contaminants at varying concentrations. Also, changing hydrologic, hydraulic, and atmospheric conditions promote migration of contaminants from land use activities of concern into the Roanoke River. The SWA also determined that the wells might be susceptible to contamination because they are located in areas that promote migration of contaminants from land use activities of concern. More specific information about the SWAs may be obtained by contacting the Western Virginia Water Authority's Water Division at 540-853-5700.







## Definitions

Contaminants in your drinking water are routinely monitored according to federal and state regulations. In the following tables and elsewhere in this report you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms:

**BDL**—Below detection level.

**Non-detects (ND):** Lab analysis indicates that the contaminant is not detectable, based on the limits of the analytical equipment used.

**Parts per million (ppm) or Milligrams per liter (mg/l):** One part per million corresponds to one minute in two years or one penny in \$10,000.

**Parts per billion (ppb) or Micrograms per liter (mg/l):** One part per billion corresponds to one minute in 2,000 years, or one penny in \$10,000,000.

**Picocuries per liter (pCi/L):** Picocuries per liter is a measure of the radioactivity in water.

**Nephelometric Turbidity Unit (NTU):** Nephelometric turbidity unit is a measure of the cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.

**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Variances and exemptions:** State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The maximum level of a disinfectant added for water treatment, below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Maximum Residual Disinfectant Level (MRDL):** The maximum level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Secondary Maximum Contaminant Level (SMCL):** The highest level recommended for a contaminant in drinking water, based on aesthetic considerations.

**Running Annual Average (RAA)**—Running annual average based on 4 quarters of analysis results.

The Authority routinely monitors for various contaminants in each water supply to meet all regulatory requirements. Most of the water quality results in the tables are from testing done in 2014. However, the state allows the Authority to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the results, though representative, are more than one year old. The tables list only those contaminants that had some level of detection within the last five years. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

The following information in the charts covers the time period January 2009 through December 2010







## Water Quality Results: Forest Central Water System (PWSID # 5019315) (1 of 2)

Constituents/  Unit of Measure	V i o l a t i o	Level Detected		AL	MCLG	MCL	MDRL	Likely Source of Contamination
		Water from Abert Filtration Plant	Water from College Hill Filtration Plant					
Inorganic Contaminants								
Chlorine, ppm	NO	Range 0.21-1.82		—	—	—	4	Water additive to control microbes
Fluoride, ppm	NO	Average: 0.75 Range: 0.19-0.99	Average: 0.77 Range: 0.48-1.11	—	4	4	—	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Lead, ppb	NO	90 <sup>th</sup> percentile value=1 0 above action limit		15	0	—	—	Corrosion of household plumbing systems, erosion of natural deposits
Copper, ppm	NO	90 <sup>th</sup> percentile value=0.06 0 above action limit		1.3	1.3	—	—	Corrosion of household plumbing systems, erosion of natural deposits
Barium, ppm	NO	Abert 0.012	CH 0.011	—	2	2	—	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Microbiological Contaminants								
Total coliform bacteria, Presence or absence	NO	2.5% of monthly samples positive (highest monthly average)		—	0	5% of monthly samples	—	Naturally present in the environment
Turbidity, NTU	NO	0.17 (highest level) 100% <0.3	0.11 (highest level) 100% <0.3	—	n/a	TT	—	Soil runoff
No single sample can be greater than 1 NTU. At least 95% of the samples taken every month must be less than 0.3 NTU								
Volatile Organic Contaminants								
Trihalomethanes (TTHM), ppb	NO	13-66 (range) 53(highest average)		—	0	80	—	By-product of drinking water disinfection
Haloacetic Acids (HAA), ppb	NO	11-42 (range) 37 (highest average)		—	0	60	—	By-product of drinking water disinfection
Radioactive Contaminants								
Radium-228,pCi/L	NO	0.6	ND	—	0	5	—	Erosion of natural deposits
Disinfection By-Product Precursors								
Total Organic Carbon (ppm) (TOC) Raw water, ppm	NO	Highest Avg.=1.49 Range=1.06-1.91	Highest Avg.=1.54 Range= 1.11-2.21	—	N/A	TT	—	Naturally present in the environment
Total Organic Carbon (ppm) (TOC) Treated, water ppm	NO	Highest Avg.=0.81 Range=0.63-	Highest Avg.=0.78 Range=0.57-0.99	—	N/A	TT	—	Naturally present in the environment
Secondary Contaminants								
Secondary Maximum Contaminant Levels (SMCL) are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the SMCL.								
Contaminant	SMCL	Abert	CH	Likely Sources				
Sodium, ppm	NA	5.7	5.8	Naturally present in the environment; addition of water treatment substances				
Sulfate, ppm	250	10.3	8.4	Naturally present in the environment; addition of water treatment substances				

### Cryptosporidium:

In 2015, the City of Lynchburg analyzed six samples of source water for cryptosporidium. These water samples were collected before any treatment had been applied at our water filtration plant. One of these samples contained a very small amount of cryptosporidium (0.1 oocyst/Liter). Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. The City of Lynchburg utilizes filtration to treat drinking water which removes cryptosporidium, but filtration methods cannot guarantee 100 percent removal. The City of Lynchburg, Department of Water resources works diligently to optimize the filtration process in order to ensure the greatest cryptosporidium removal.





## Water Quality Results: Forest Central Water System (PWSID # 5019315) (2 of 2)

Constituents (Unit of measure)	Violation	Level Found (range)	AL	MCLG	MCL	Date of Sample	Likely Source of Contamination
<b>The following data was collected by the Bedford Regional Water Authority</b>							
<b>Microbiological Contaminants</b>							
Total Coliform Bacteria Presence or absence	No	2 of 46 were positive in June 2015 One positive in July 2015 One positive in August 2015	—	0	Presence of coliform bacteria in > 5% of monthly samples	Monthly 2015	Naturally present in the environment
<b>Disinfection By-Products, Precursors, and Residuals</b>							
TTHM (ppb) Trihalomethanes	NO	69 highest quarterly average 5-71	—	NA	80	Quarterly 2015	By-product of drinking water chlorination disinfection
HAA5 (ppb) Haloacetic Acids	NO	44 highest quarterly average 18-54	—	NA	60	Quarterly 2015	By-product of drinking water chlorination disinfection
Chlorine (ppm)	NO	1.1 Average 0.3-1.8	—	MRDLG-4	MRDL=4	Monthly	Water additive used to control microbes
<b>Lead and Copper</b>							
Lead (ppb)	NO	90th percentile value = 1.3 Of 31 samples none above AL	15	0	—	August 2014	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	NO	90th percentile value =0.038 of 31 samples one above AL	1.3	1.3	—	August 2014	Corrosion of household plumbing systems; erosion of natural deposits

In 2014, the Authority participated in the third Unregulated Contaminant Monitoring Rule (UCMR3) monitoring. Unregulated contaminants are those that don't yet have a drinking water standard set by EPA. The purpose for these contaminants is to help USEPA decide whether the Contaminants should have a standard. As such, there is no MCLG or MCL established for the following unregulated contaminants.

<b>Unregulated Contaminants</b>							
Vanadium , ppb	N/A	0.3 Range .02-.6	—	N/A	N/A	February— August 2015 at entry point and distribu-	Naturally present in the environment
Strontium, ppb	NA	20 Range 17-27	—	N/A	N/A	February— August 2015 at entry point and distribu-	Naturally present in the environment
Chromium-6, ppb	NA	0.16 Range .03-.5	—	N/A	N/A	February— August 2015 at entry point and distribu-	Naturally present in the environment
Chlorate, ppb	NA	420 Range 290-640	—	N/A	N/A	February— August 2015 at entry point and distribu-	Naturally present in the environment





## Water Quality Results: Mountain View Shores (PWSID #5019685)

Contaminant (unit of measure)	MCLG	MCL	Level Found	Range	Violation	Date of Sample	Typical Source of Contamination
<b>Lead and Copper</b>							
Copper (ppm)	1.3	AL = 1.3	0.8 (90th percentile)	Range: 0.02-0.93 Of ten samples collected none were above AL	No	March-June 2015	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	0	AL = 15	0.8 90th percentile	Range: 0.3-0.9  Of ten samples collected none were above AL	No	March-June 2015	Corrosion of household plumbing systems; erosion of natural deposits
<b>Inorganic Contaminants</b>							
Fluoride (ppm)	4	4	.09	Range: ND-0.09	No	February 2013 2014	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and alumi- num factories
Barium (ppm)	2	2	0.0064	Range: 0.005-0.0064	No	February 2013- 2014	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Nitrite/-Nitrate (ppm)	10	10	.07	Range: 0.03-.07	No	March 2015	Runoff from fertilizer use, leaching from septic tanks, sewerage; erosion of natural deposits
<b>Radioactive Contaminants</b>							
Alpha emitters (pCi/L)	0	15	3.6	Range:ND-3.6	No	February 2012 2013	Erosion of natural deposits
Combined Radium (pCi/L)	0	5	0.46	Range:0.04-0.46	No	February 2012 2013	Erosion of natural deposits
<b>Disinfection By-Products, Precursors, and Residuals</b>							
TTHM (ppb) Trihalomethanes	0	80	4.7	0	No	October 2013	By-product of drinking water disinfection.
HAA5 (ppb) Haloacetic acids	0	60	2.6	0	No	October 2013	By-product of drinking water disinfection.
Chlorine (ppm)	MRDLG=4	MRDL-4	1.01	0.23-1.50	No	Monthly 2015	Water additive used to control microbes
<b>Unregulated Contaminants</b>							
Hardness (ppm)	n/a	n/a	81	66-115	No	Monthly	Measurement of naturally occur- ring hardness metals
pH (pH units)	n/a	6.5-8.5	7.1	SMCL 6.0-8.9	No	Daily	Acidity or basicity of water
A sample collected in February 2014 indicated the sodium in the treated water is 29.3 mg/L. This is above the EPA recommended optimal level of less than 20 mg/L for sodium in drinking water, which is established for those individuals on a "strict" sodium intake diet.							





## Water Quality Results: Smith Mountain Lake Central Water System (PWSID #5019400)

Contaminant (Unit of Measure)	MCLG	MCL	Level Found	Range	Violation	Date of Sample	Typical Source of
<b>Microbiological Contaminants</b>							
Turbidity (NTU)	n/a	TT	0.060 100% < 0.5	n/a	No	Continuously monitored	Soil runoff
<b>Disinfection By- Products, Precursors, and Residuals</b>							
TTHM (ppb) Trihalomethanes	NA	80	69	45-89	No	Quarterly	By-product of drinking water disinfection
HAA5 (ppb) Haloacetic Acid	NA	60	55	29-90	No	Quarterly	By-product of drinking water disinfection
Chlorine (ppm)	MRDLG=4	MRDL=4	.83	.03-1.9	No	Monthly 2015	Water additive used to control
<b>Radioactive Contaminants</b>							
Gross Alpha	0	15 pCi/L	.28	n/a	No	July 2015	Erosion of Natural Deposits
Combined Radium	0	5 pCi/L	.58	n/a	No	July 2015	Erosion of Natural Deposits
<b>Inorganic Contaminants</b>							
Lead (ppb)	0	AL=15	4 (90th percentile) Of twenty one exceeded the action level	.3-18	No	Sept.-Dec. 2015	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	1.3	AL=1.3	.62 (90th percentile) Of twenty none exceeded the action level	.017-0.798	No	Sept-Dec 2015	Corrosion of household plumbing systems; erosion of natural deposits
Nitrate (ppm)	10	10	0.47	n/a	No	July 2015	Runoff from fertilizer use, leaching from septic tanks, sewerage; erosion of natural deposits
Barium ( ppm)	2	2	.03	n/a	No	July 2015	Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits
Fluoride	4	4	0.1	n/a	No	July 2015	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
<b>Unregulated Contaminants</b>							
pH (pH units)	n/a	SMCL 6.5-8.5, as shown on the Hill-	7.7 average	7.4-8.0	No	Daily	Acidity or basicity of water
Hardness (ppm)	n/a	n/a	109 average	63-158	No	Daily	Measurement of naturally occurring hardness metals
Iron (ppm)	n/a	SMCL 0.3	0	0.05	No	Daily	Rusty color, sediment, metallic taste, reddish or orange staining.
Alkalinity (ppm)	n/a	n/a	92	65-157	No	Daily	
Manganese (ppm)	n/a	SMCL 0.05	0.015	0-.020	No	Daily	Black to brown color, black staining, bitter metallic taste





# Water Quality Results: Stewartville Consecutive (PWSID #5019795) (1 of 3)

	Spring Hollow			Carvins Cove			Falling Creek			Crystal Spring		
Parameter	Min	Max	AVG	Min	Max	AVG	Min	Max	AVG	Min	Max	AVG
Coliform Total		4			4							
E. Coli		1			0							
pH	7.5	7.8	7.7	7.5	7.7	7.6	6.5	7.5	7.3	7.6	7.7	7.7
Alkalinity Total ppm	127	133	131	41	48	44	18	19	18			128
Chlorate ppm	0.000	0.060	0.021	0.025	0.096	0.059						
Chloride ppm			10.2			4.3			4.6			7.4
Chlorine ppm	1.1	1.2	1.2	1.1	1.4	1.2	1.2	1.4	1.3	1.1	1.1	1.1
Chlorite ppm	0.000	0.069	0.012	0.000	0.110	0.024						
Color pcu			ND			ND			ND			ND
Conductance umhos/cm			298.8			130.1			68			259.95
Corrosion Index(Langelier)			-0.07			-0.87			-3.13			-0.24
Fluoride ppm	0.68	0.80	0.71	0.60	0.69	0.66	0.59	0.67	0.62	0.6	0.7	0.68
Hardness, Calcium ppm			95			40			6			78
Hardness Total ppm	152	159	156	49	55	52	16	22	18	132	137	137
Ortho Phosphate as P, ppm			0.08	0.21	0.33	0.27	0.2	0.24	0.23			0.09
Sulfate ppm			17			10.7			7.7			2.9
Turbidity ntu	0.14	0.4	0.3	0.09	0.2	0.12	0.08	0.82	0.20	0.01	0.057	0.014
TDS ppm			178			92			76			153
TOC ppm	0.85	1.27	1.06	1.26	2.15	1.72	0.91	1.62	1.26			
Nitrate/Nitrite			0.32			ND			0.49			0.68
0=NON DETECT												
Cyanide ppm						0.008			ND			ND
Aluminum ppm			ND			ND			0.0242			ND
Antimony ppm			ND			0.00005			0.00005			ND
Arsenic ppm			ND			ND			ND			ND
Barium ppm			0.033			0.0495			0.0116			0.035
Beryllium ppm			ND			ND			ND			ND
Cadmium ppm			ND			ND			0.00008			ND
Chromium ppm			ND			ND			ND			0.0004
Copper ppm			ND			0.0021			0.0046			0.004
IRON			ND	0.011	0.019	0.015	0.006	0.203	0.025			ND
Lead ppm			ND			ND			0.00015			ND
Manganese ppm			0.0007	0.00057	0.01	0.007	0.008	0.015	0.011			ND
Mercury ppm			ND			ND			ND			ND
Nickel ppm			ND			ND			ND			ND
Selenium ppm			ND			ND			ND			ND
Silver ppm			ND			ND			ND			ND
Sodium ppm			5.74			6.14			9.8			3.53
Thallium ppm			ND			ND			0.00002			ND
Zinc ppm			ND			ND			0.345			ND
Gross Alpha			<0.9			-0.78			<0.5			1.1
Gross Beta			2.4			1.5			1.8			1.8
Radium 226						0.03						
Radium 228			<0.6			0.79			<0.6			0.8
Gross Alpha + Radon& U												
TTHM ppb	16-89 / LRAA 25-62											
HAA5 ppb	6-68 / LRAA 14-47											
SOC												
Pesticides & PCB's			ND			ND			ND			ND
Herbicides												
Giardia						0.1/L						
VOC'S ppm			ND			ND			*/repeat ND			ND





## Water Quality Results: Stewartsville Consecutive (PWSID #5019795) (2 of 3)

Constituents (Unit of measure)	Violation	Level Found (range)	MCLG	MCL	Date of Sample	Typical Source of Contamination
<b>The following data was collected by the Bedford County Public Service Authority/ Bedford Regional Water Authority.</b>						
<b>Microbiological Contaminants</b>						
<b>Total Coliform Bacteria</b>	No	Of nine samples collected one was positive	0	1 positive monthly sample	September 2015	Naturally present in the environment
<b>Disinfection By-Products Precursors and Residuals</b>						
<b>HAA5 (ppb)</b> Haloacetic Acids	no	23 highest quarterly average Range: 7-62	NA	60	Quarterly 2015	By-product of drinking water chlorination disinfection
<b>TTHM (ppb)</b> Trihalomethanes	Yes	84 highest quarterly average Range: 68-123	NA	80	Quarterly 2015	By-product of drinking water chlorination disinfection
<b>Chlorine (ppm)</b>	no	0.34 average Range: 0.03—0.70	MRDLG= 4	MRDL=4	Monthly	Water additive used to control microbes
<b>Lead and Copper</b>						
<b>Copper (ppm)</b>	no	90th percentile value = 0.017 Of five samples collected none exceeded AL	1.3	AL=1.3	August 2014	Corrosion of household plumbing systems; erosion of natural deposits





## Water Quality Results: Stewartsville Consecutive (PWSID #5019795) (3 of 3)

### IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

#### The Stewartsville Consecutive Waterworks

#### Has Levels of Disinfection Byproducts Above Drinking Water Standards

Our water system recently exceeded a drinking water standard. Although this situation is not an emergency, you, as our customers, have a right to know what happened, what you should do, and what we are doing to correct this situation.

To ensure satisfactory water quality, we routinely monitor for the presence of many drinking water contaminants. Testing results on the fourth quarter (October-December) of 2015 show that our system exceeded the standard or Primary Maximum Contaminant Level (PMCL) for total trihalomethanes (TTHM). The standard for TTHM is 0.080 mg/L based on a four-quarter locational running annual average. The average concentration for TTHM based on the four calendar quarters is 0.084 mg/L.

#### What should consumers do?

You do not need to use an alternative water supply, such as bottled water. However, if you have specific health concerns, consult your doctor or the Bedford County Health Department at (540) 586-7952.

#### What does this mean?

This is not an immediate health risk. If it had been, you would have been notified immediately. However, some people who drink water containing total trihalomethanes in excess of the PMCL over many years may have an increased risk of cancer and may experience problems with their liver, kidneys, or central nervous system.

#### What happened? What is being done?

TTHMs, along with other disinfection byproducts (DBPs), are formed when trace amounts of naturally occurring organic compounds in the raw water source combine with chlorine that is used to disinfect the treated water. Because of the nature of formation of these compounds in the presence of chlorine, typically increased detention time can result in higher levels in this water supply. Samples collected during the summer months typically exhibit the highest levels. All locations within the distribution system do not have the same levels of TTHMs. The levels that are present depend on such factors as demand / residence time of water in the system, levels of chlorine present and temperature of the water. By current regulation, the single sample collected from the system must be from a location that reflects the point of maximum residence time in the system. Compliance is based on the results of analyses from these sampling locations.

We are working with Virginia Department of Health officials to resolve this issue. Additional sampling and system flushing are being utilized to resolve this problem.

For more information, please contact the Bedford Regional Water Authority at (540) 586-7679.

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

State Water System ID# 5019795

Date Distributed: December 15, 2015





## Water Quality Results: Valley Mills Crossing (PWSID #5019875)

Contaminant (unit of measure)	MCLG	MCL	Level Found	Range	Violation	Date of Sample	Typical Source of Contamination
<b>Lead and Copper</b>							
Copper (ppm)	1.3	AL=1.3	0.57 (90th percentile)	Range: 0.07-1.3  Of ten samples collected none exceeded the AL	No	August– September 2014	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	0	AL=15	12 (90th percentile)	Range: 1.4-28.7  Of ten samples collected one exceeded the AL	No	August– September 2014	Corrosion of household plumbing systems; erosion of natural deposits
<b>Inorganic Contaminants</b>							
Nitrate (ppm)	10	10	1.90	—	No	October 2015	Runoff from fertilizer use, leaching from septic tanks, sewerage; erosion of natural deposits
Barium (ppm)	2	2	0.0115	N/A	No	April 2015	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
<b>Radioactive Contaminants</b>							
Alpha emitters (pCi/L)	0	15	.55	n/a	No	April 2011	Erosion of natural deposits
Combined radium (pCi/L)	0	5	.76	n/a	No	April 2011	Erosion of natural deposits
<b>Disinfection By-Products, Precursors, and Residuals</b>							
TTHM (ppb) Trihalomeanes	NA	80	2.6	N/A	No	August 2014	By-product of drinking water disinfection
HAA5 (ppb) Haloacetic	NA	60	20.2	n/a	No	August 2014	By-product of drinking water disinfection
Chlorine (ppm)	MRDLG=4	MRDL=4	1.11	0.41-2.20	No	Monthly 2015	Water additive used to control microbes
<b>Volatile Organic Contaminants</b>							
Xylene (ppm)	10	10	0.0043	N/A	No	October 2015	Discharge from petroleum factories ;Discharge from chemical factories
<b>Un regulated Contaminants</b>							
pH (pH Units)	n/a	6.5-8.5 SMCL	6.2 average	6.0-6.6 range	No	Daily	Acidity or basicity of water
Hardness (ppm)	n/a	n/a	86 average	45-103 range	No	Monthly	Measurement of naturally occurring hardness metals



## Water Quality Results: Town Central PWSID#5515050

### TEST RESULTS

Contaminant / unit of measurement	Violation Y/N	Level Detected/Range	Sample Date	MCLG	MCL	Likely Source of Contamination
<b>Microbiological Contaminants (ND)</b>						
Total Coliform Bacteria	N	Of eight samples collected one was positive-August	Monthly at eight sample sites	0	Presence of coliform in no more than 1 sample per month	Naturally present in the environment and are used as an indicator that other potentially-harmful, bacteria that may be present.
Turbidity / NTU	N	0.22(highest level) 100 % < 0.3	Daily	NA	Max TT 0.3 in 95 % of monthly samples	Soil runoff
<b>Inorganic Contaminants</b>						
Copper (ppm)	N	0.039 (90 <sup>th</sup> percentile) Range=0.0107- 0.0736 Of the 20 samples collected none exceeded the AL	2014	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	N	1.2 (90 <sup>th</sup> percentile) Range = ND – 3.9 Of the 20 samples collected none exceeded the AL	2014	0	AL = 15	Corrosion of household plumbing systems; erosion of natural deposits
Fluoride (ppm)	N	Average= 0.76 Range = 0.14- 1.57	Daily	4	4	Water additive which promotes strong teeth
Nitrate – Nitrite (ppm)	N	.2	2015	10	10	Runoff from fertilizer use, leaching from septic tanks, sewerage; erosion of natural deposits
Barium (ppm)	N	0.009	2015	2	2	Discharge of drilling waste. Discharge from metal refineries; Erosion of natural deposits
<b>Radioactive Contaminants</b>						
Gross Alpha pCi/L	N	0.60	March 2014	0	15	Erosion of natural deposits
Combined Radium pCi/l	N	0.97	March 2014	0	5	Erosion of natural deposits
<b>Disinfection Byproducts</b>						
Chlorine (ppm)	N	Average=1.0 Range: 0.1-1.6	Monthly at eight sample sites	MRDLG =4	MRDL=4.0	Chlorine is added to insure that water is disinfected
TTHM [Total Trihalomethanes] (ppb)	N	57 highest quarterly average Range: 24-76	Quarterly 2015	N/A	80	By-product of drinking water chlorination
HAA5 [Haloacetic Acids] (ppb)	N	58 highest quarterly average Range: 46-65	Quarterly 2015	N/A	60	By-product of drinking water chlorination
Stage 2 started in 4th quarter of 2014 additional sampling locations were added for TTHM and HAA5 to meet regulatory compliance.						
TOC Removal ratio Total Organic Carbon	N	Ave. Ratio: 1.1 Range: ND-1.3	Monthly 2015	NA	TT- TOC Removal Ratio greater than or equal to 1	Naturally present in the source water
<b>Physical and Mineral Characteristics for calendar year 2015</b>						

In addition to the required analysis that is mainly completed by independent labs we also conduct over 4,000 individual operational tests on your water during the year. The following constituents analyzed in your water on a daily basis are indicators of the appearance, taste and mineral content of the drinking water delivered to your tap.

Constituent (w/unit of measurement)	Frequency	Annual Average
pH, standard units	Every 4 hours	7.4
Alkalinity, ppm	Every 4 hours	46
Total Hardness, ppm	Once per day	28
Calcium Hardness, ppm	Once per day	25
CO2, ppm	Once per day	4
Iron, ppm	Once per day	0.01
Manganese, ppm	Once per day	0.08
Temperature, Celsius	Every 4 hours	13
Free Chlorine, ppm	Continuous monitor in addition to every 4 hours	1.6





# Bedford Regional Water Authority

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[www.brwa.com](http://www.brwa.com)